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(54) Title: IMPROVED FILTERING MEDIUM AND USE OF THE SAID FILTERING MEDIUM FOR POLLUTION REMOVAL FROM LAGOONS

(57) Abstract: Filtering medium based on activated carbon which is characterized in that it comprises three superposed layers, respectively an inner layer and two outer layers, the inner layer consisting of 80 to 95% by dry weight of activated carbon, the balance for 100% consisting of organic and/or inorganic chemical fibres, the first outer layer comprising from 45 to 95% by dry weight of organic and/or inorganic chemical fibres, the balance for 100% consisting of activated carbon and/or of a material having a density of less than 0.9, the second outer layer comprising from 5 to 25% by dry weight of activated carbon, the balance for 100% consisting of organic and/or inorganic chemical fibres, and in that the weight of the inner layer is between 40 and 200 g/m<sup>2</sup> and the weight of the outer layers is between 10 and 100 g/m<sup>2</sup>.

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AMENDED

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## AMENDED CLAIMS

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original claims 1-18 replaced by amended claims 1-11 (3 pages)]

1. Filtering medium based on activated carbon, characterized in that it comprises three superposed layers, respectively an inner layer and two top and bottom outer layers,
  - the inner layer consisting of 80 to 95% by dry weight of activated carbon, the balance for 100% consisting of organic and/or inorganic chemical fibres,
  - the bottom layer comprising from 45 to 100% by dry weight of organic chemical fibres having OH functional groups and optionally inorganic fibres, the possible balance for 100% consisting, where appropriate, of activated carbon and/or of a material having a density below 0.9, all or some of the OH functional groups having reacted with a grafting reagent RX, where R is a suitable hydrophobic group in order to be able to be in the liquid state at a temperature of at least 200°C at atmospheric pressure and in order to be able to react on the OH functional groups at least under certain reaction conditions, while producing covalent grafting of hydrophobic groups R onto the OH functional groups with formation of a volatile compound HX under the reaction conditions,
  - the top layer comprising from 5 to 25% by dry weight of activated carbon, the balance for 100% consisting of organic and/or inorganic chemical fibres.
2. Filtering medium according to Claim 1, characterized in that RX is a fatty acid halide, in particular a saturated or unsaturated aliphatic acid halide comprising at least 16 carbon atoms, advantageously behenic acid.
3. Medium according to Claim 1, characterized in that the bottom layer contains at least 30% by weight of organic fibres having OH functional groups.

4. Medium according to Claim 1, characterized in that the activated carbon present in the top layer and optionally in the bottom layer is in the form of fibres.
5. Filtering medium according to Claim 1, characterized in that it contains activated carbon in the form of fibres intended to adsorb  $\text{CH}_4$  and  $\text{H}_2\text{S}$ , whose characteristics are the following:
  - yarn count of the filament 1 to 1.5 dtex,
  - specific surface area: 1 400  $\text{m}^2/\text{g}$ ,
  - amount of micro porosity: 95%.
6. Filtering medium according to Claim 1, characterized in that the top layer is coated with a layer based on a photocatalytic agent.
7. Filtering medium according to Claim 6, characterized in that the layer based on a photocatalytic agent exists in the form of a mixture comprising between 10 and 70 parts, advantageously 50 parts of an aqueous colloidal dispersion of silicon dioxide ( $\text{SiO}_2$ ), the balance for 100 parts consisting of  $\text{TiO}_2$  anatase.
8. Filtering medium according to Claim 7, characterized in that the particles of  $\text{SiO}_2$  represent from 1 to 50% by weight of the colloidal aqueous dispersion and have a diameter of between 10 and 40 nm.
9. Filtering medium according to Claim 7, characterized in that the layer based on a photocatalytic agent comprises between 5 and 40  $\text{g}/\text{m}^2$ , advantageously 20  $\text{g}/\text{m}^2$  of photocatalytic agent.
10. Filtering medium based on activated carbon which is characterized in that it comprises three superposed layers, respectively an inner layer and two outer layers, the inner layer consisting of a 80 to 95% by dry weight of activated carbon, the balance for 100% consisting of organic and/or inorganic chemical fibres, the first outer layer comprising from

45 to 95% by dry weight of organic and/or inorganic chemical, the balance for 100% consisting of activated carbon and/or of a material having a density of less than 0.9, the second outer layer comprising from 5 to 25% by dry weight of activated carbon, the balance for 100% consisting of organic and/or inorganic chemical fibres, and in that the weight of the inner layer is between 40 and 200 g/m<sup>2</sup> and the weight of the outer layers is between 10 and 100 g/m<sup>2</sup>.

11. Use, as floating support, of a filtering medium according to any of the preceding claims 1 - 10.

## INTERNATIONAL SEARCH REPORT

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## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

MEDLINE, BIOSIS, CHEM ABS Data, EMBASE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>GERSH B J: "Current issues in reperfusion therapy." THE AMERICAN JOURNAL OF CARDIOLOGY. UNITED STATES 22 OCT 1998, vol. 82, no. 8B, 22 October 1998 (1998-10-22), pages 3P-11P, XP002242596 ISSN: 0002-9149 the whole document</p> <p>---</p> <p>-/--</p>	1-6



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

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